

09/341347  
412 Rec'd PCT/PTO 08 JUL 1999

Practitioner's Docket No. U 012304-4

PATENT

TRANSMITTAL LETTER TO THE U.S. DESIGNATED OFFICE (DO/US)--  
ENTRY INTO THE U.S. NATIONAL STAGE UNDER CHAPTER I

INTERNATIONAL APPLICATION NO. <u>PCT/SG98/00096</u>	INTERNATIONAL FILING DATE <u>27 NOVEMBER 1998</u>	PRIORITY DATE CLAIMED
TITLE OF INVENTION		
METHOD AND APPARATUS FOR CONTENT-LINKING SUPPLEMENTAL INFORMATION WITH TIME-SEQUENCE DATA		
APPLICANT(S)	1. GURMINDER SINGH 2. VINOD VIJAYALEKSHMI VASUDEVAN	

Box PCT

Assistant Commissioner for Patents  
Washington D.C. 20231

ATTENTION: DO/US

**NOTE:** The completion of those filing requirements that can be made at a time later than 20 months from the priority date results from the Commissioner exercising his judgment under the authority granted under 35 U.S.C. 371(d). The filing receipt will show the actual date of receipt of the last item completing the entry into the national phase. See 37 C.F.R. 1.491, which states: "An international application enters the national stage when the applicant has filed the documents and fees required by 35 U.S.C. 371(c) within the periods set forth in § 1.494 and § 1.495."

**WARNING:** Where the items are those that can be submitted to complete the entry of the international application into the national phase subsequent to 20 months from the priority date, the application is still considered to be in the international stage. And if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. 1.10 must be used (because international application papers are not covered by an ordinary certificate of mailing. 37 C.F.R. 1.8(2)(xi)).

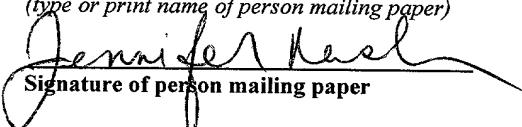
**NOTE:** Documents and fees must be clearly identified as a submission to enter the national stage under 35 U.S.C. 371, otherwise the submission will be considered as being made under 35 U.S.C. 111. 37 C.F.R. 1.494(f).

CERTIFICATION UNDER 37 C.F.R. 1.10\*  
(Express Mail label number is mandatory.)  
(Express Mail certification is optional.)

I hereby certify that this paper, along with any document referred to, is being deposited with the United States Postal Service on this date JULY 8, 1999, in an envelope as Express Mail Post Office to Addressee, mailing Label Number EE784099672US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

JENNIFER RASHKIN

(type or print name of person mailing paper)

  
Signature of person mailing paper

**WARNING:** Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

**\*WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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1. Applicant herewith submits to the United States Designated Office (DO/US) the following items under 35 U.S.C. 371:

- a.  This express request to immediately begin national examination procedures (35 U.S.C. 371(f)).
- b.  The U.S. National Fee (35 U.S.C. 371(c)(1)) and other fees (37 C.F.R. 1.492), as indicated below:

2. Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
*	<b>TOTAL CLAIMS</b>	84 - 20 =	64	x\$ 18.00=	<b>\$ 1,152.00</b>
	<b>INDEPENDENT CLAIMS</b>	9 - 3 =	6	x\$ 78.00=	<b>468.00</b>
<b>MULTIPLE DEPENDENT CLAIMS(S) (if applicable) + \$260.00</b>					
<b>BASIC FEE**</b>	The international search fee, as set forth in § 1.445(a)(2) to be paid to the US PTO acting as an international Searching Authority:				
	<p><input type="checkbox"/> has been paid (37 CFR 1.492(a)(2)).....\$760.00</p> <p><input checked="" type="checkbox"/> has not been paid (37 CFR 1.492(a)(3)).....\$970.00</p> <p><input type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 CFR 1.492(a)(5))..... \$840.00</p>				
	<b>Total of above Calculations</b>				
	<b>=970</b>				
<b>SMALL ENTITY</b>	Reduction by ½ for filing by small entity, if applicable. Affidavit must be filed also. (note 37 CFR 1.9, 1.27, 1.28)				
	<b>Subtotal</b>				
	<b>Total National Fee</b>				
	<b>\$970.00</b>				
	Fee for recording the enclosed assignment document \$40.00 (37 CFR 1.21(h)). (See Item 10 below). See attached "ASSIGNMENT COVER SHEET (37 CFR 3.34)".				
<b>TOTAL</b>	<b>Total Fees enclosed</b>				
	<b>\$970.00</b>				

\*See attached Preliminary Amendment Reducing the Number of Claims.

**\*\*WARNING:** "To avoid abandonment of the application, the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 20 months from the priority date; \*\*\* (2) the basic national fee (see § 1.492(a)). The 20-month time limit may not be extended." 37 C.F.R. § 1.494(b).

i.  A check in the amount of \$ 970.00 to cover the above fees is enclosed.  
ii.  Please charge Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_.

A duplicate copy of this sheet is enclosed.

**WARNING:** *If the translations of the international application, oath or declaration and national fee have not been submitted by the applicant within twenty (20) months from the priority date, the applicant will be so notified and given a period of time within which to file the translation and/or oath or declaration in order to prevent abandonment. The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than twenty (20) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than twenty (20) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 will apply. 37 CAR § 1.494(c); Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35.*

3. A copy of the International application as filed (35 U.S.C. 371(c)(2)):  
a.  is transmitted herewith.  
b.  is not required, as the application was filed with the United States Receiving Office.  
c.  has been transmitted  
  
i.  by the International Bureau. Date of mailing of the application from form PCT/IB/308): \_\_\_\_\_.  
ii.  by applicant on \_\_\_\_\_.  
Date

**NOTE:** *Section 1.494(b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 20 months from the priority date to avoid abandonment. "The International Bureau nominally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies the applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage and applicant has received notice from the International Bureau, applicant need only pay the basic national fee by 20 months from the priority date." [This can now be paid subsequently with a surcharge.] Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35.*

4. A translation of the International application into the English language (35 U.S.C. 371(c)(2)):  
a.  is transmitted herewith.  
b.  is not required as the application was filed in English.  
c.  was previously transmitted by applicant on \_\_\_\_\_.  
Date

5.  Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. 371(c)(3));

**NOTE:** *The Notice of January 7, 1993 indicates that 37 C.F.R. § 1.494(d) was "amended to clarify the existing practice that PCT Article 19 Amendments must be submitted by 20 months from the priority date, which time may not be extended." This Notice further advises: "Of course, the failure to do so does not result in loss of the subject matter of PCT Article 19 amendments. The applicant may submit that subject matter in a preliminary amendment filed under Section 1.121. In many cases, filing an amendment under Section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 35. See item 11(c) below.*

a.  are transmitted herewith.

b.  have been transmitted

- i.  by the International Bureau. Date of mailing of the amendment (from form PCT/IB/308): \_\_\_\_\_.
- ii.  by applicant on \_\_\_\_\_  
Date

c.  have not been transmitted, as

- i.  no notification has been received that the International Search Authority has received the Search Copy.
- ii.  the Search Copy was received by the International Searching Authority, but the Search Report has not yet been issued. Date of receipt of Search Copy from form PCT/ISA/202): \_\_\_\_\_.
- iii.  applicant chose not to make amendments under PCT Article 19. Date of mailing of Search Report (from form PCT/ISA/210): \_\_\_\_\_.
- iv.  the time limit for the submission of amendments has not yet expired. The amendments, or a statement that amendments have not been made, will be transmitted before the expiration of the time limit under PCT Rule 46.1.

6.  A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3));

- a.  is transmitted herewith.
- b.  is not required as the amendments were made in the English language.
- c.  has not been transmitted for reasons indicated at point 5(c) above.

7.  An oath or declaration of the inventor (35 U.S.C. 371(c)(4)) complying with 35 U.S.C. 115

- a.  was previously submitted by applicant on \_\_\_\_\_  
Date
- b.  is submitted herewith, and such oath or declaration
  - i.  is attached to the application.
  - ii.  identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or (c) and 5(b); and states that they were reviewed by the inventor, as required by 37 C.F.R. 1.70.
  - iii.  will follow.

II. Other document(s) or information included:

8.  An international Search Report or Declaration under PCT Article 17(2)(a):

- is transmitted herewith.
- has been transmitted by the International Bureau. Date of mailing from form PCT/IB/308): \_\_\_\_\_
- is not required, as the application was searched by the United States International Searching Authority.
- will be transmitted promptly upon request.
- has been submitted by applicant on \_\_\_\_\_  
Date
- is not transmitted, as the international search has not yet issued.

9.  An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98:

- is transmitted herewith.  
Also transmitted herewith is (are)  
 Form PTO-1449 (PTO/SB/08A and 08B)  
 Copies of citations listed
- will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. 371(c).
- was previously submitted by applicant on \_\_\_\_\_  
Date

10.  An assignment document is transmitted herewith for recording. A separate  
 "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or  
 FORM PTO—1595  
is also attached.

Please mail the recorded assignment document to:

- the person whose signature and address appears below.
- the following:

11.  Additional documents

- Copy of request (PCT/RO/101)
- International Publication No. \_\_\_\_\_
  - Specification, claims and drawing
  - Front page only
- Preliminary amendment (37 C.F.R. § 1.121)
- Other **POWER OF ATTORNEY BY GURMINDER SINGH  
POWER OF ATTORNEY BY VINOD VIJAYALEKSHMI  
VASUDEVAN**

12.  The above checked items are being transmitted

- before the 18th month publication.
- after publication and the article 20 communication, but before 20 months from the priority date.
- after 20 months (revival).

*NOTE: Petition to revive (37 C.F.R. 1.137(a) or (b)) is necessary if 35 U.S.C. 371 requirements are submitted after 20 months.*

13.  Certain requirements under 35 U.S.C. 371 were previously submitted by the applicant on \_\_\_\_\_ namely:  
Date

#### **AUTHORIZATION TO CHARGE ADDITIONAL FEES**

**WARNING:** *Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges if extra claims are authorized.*

**NOTE:** *"A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 CFR 1.136(a)(3).*

**NOTE:** *"Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 CFR 1.26(a).*

The Commissioner is hereby authorized to charge the following additional fees that may be required by this paper and during the entire pendency of this application to Account No. 12-0425.

37 C.F.R. 1.492(a)(1), (2), (3), and (4) (filing fees)

**WARNING:** *Because failure to pay the national fee within 20 months without extension (37 C.F.R. § 1.494(b)(2)), results in abandonment of the application, it would be best to always check the above box.*

37 C.F.R. 1.492(b), (c), and (d) (presentation of extra claims)

**NOTE:** *Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment, prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.*

37 C.F.R. 1.17 (application processing fees)

37 CFR 1.17(a)(1)-(5)(extension fees pursuant to § 1.136(a)).

37 C.F.R. 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. 1.311(b)).

**NOTE:** *Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. 1.311(b).*

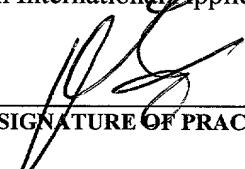
*NOTE: 37 C.F.R. 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying or at the time of paying . . . issue fee...." From the wording of 37 C.F.R. 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.*

37 C.F.R. 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 20 months after the priority date.

Reg. No. 25,858

Tel. No.: (212)708-1930

Customer No.:

  
**SIGNATURE OF PRACTITIONER**

**WILLIAM R. EVANS**

*(type or print name of practitioner)*

**C/O LADAS & PARRY**

P.O. Address

**26 WEST 61<sup>ST</sup> STREET  
NEW YORK, NEW YORK 10023**

13-6

09/341347  
80 Rec'd PCT/PTO 08 JUL 1999

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: GURMINDER SINGH, et al

For: METHOD AND APPARATUS FOR CONTENT-LINKING SUPPLEMENTAL INFORMATION WITH TIME-SEQUENCE DATA

Attorney Docket No.: U 012304-4

**Assistant Commissioner for Patents  
Washington, D.C. 20231**

Sir:

**PRELIMINARY AMENDMENT**

Please amend the above application as follows:

**IN THE CLAIMS**

Claim 19, line 1, delete "any one of claims 16 to 18" and replace therefor

-- claim 16--

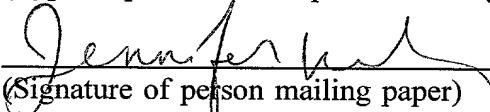
Claim 33, lines 1-2, delete "any one of claims 30 to 32" and replace therefor

-- claim 30--

**CERTIFICATE UNDER 37 1.10**

I hereby certify that this paper is being deposited with the United States Postal Service on this date JULY 8, 1999 in an envelope as "EXPRESS MAIL POST OFFICE TO ADDRESSEE" Mailing Label Number EE784099672US addressed to the: Commissioner of Patents and Trademarks, Washington, D.C. 20231

JENNIFER RASHKIN  
(Type or print name of person mailing paper)

  
(Signature of person mailing paper)

**NOTE:** Each paper or fee referred to as enclosed herein has the number of the "EXPRESS MAIL" mailing label place thereon prior to mailing 37 CFR 1.16(b).

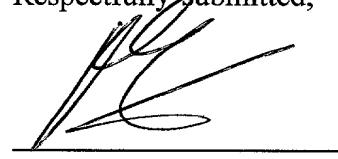
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Claim 47, line 1, delete "or 46"

Claim 57, line 1, delete "or 56"

Claim 67, line 1, delete "or 66"

Respectfully submitted,



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METHOD AND APPARATUS FOR CONTENT-LINKING SUPPLEMENTAL  
INFORMATION WITH TIME-SEQUENCE DATA

### FIELD OF THE INVENTION

5 The present invention is directed to the field of delivering animation, audio and video data via broadcasting or network mechanisms, and in particular to systems for providing value-added content to animation, audio and video programming.

### BACKGROUND

10 With the rapid advent of technologies such as digital multimedia, broadband networking, video on demand, and the Internet, large volumes of audio, animation and video data or programming are readily available to the public. This programming can be delivered to an audience by a multitude of ways including broadcasting, on-demand type systems, etc. However, there are not adequate mechanisms to distinguish 15 programming distributed in this fashion from traditional forms such as broadcast television or screened movies.

There are several known systems which offer video-on-demand and pay per-view services. These systems afford an opportunity for serving the audience with additional 20 information about the programming. Existing mechanisms require the user to actively request any additional information. However, these mechanisms have a number of drawbacks. A first disadvantage is that a user must have adequate knowledge of their own to request any additional information. The information is not associated with the content of the programming. Still further, there is no guarantee that the user will 25 request and view the additional information that is available. This is a major impediment, particularly in advertising.

In existing methods for normal TV broadcast situations to systems such as Synchronised Multimedia Integration Language (SMIL), Microsoft Netshow, MPEG- 30 4, etc., the programming is required to be created, or packaged, afresh along with the associated information into a single entity. This has a number of disadvantages

including a lack of flexibility and programmable control. Further, it cannot be done on the fly. If the associated information changes, the entire package must be redone. That is, additional information cannot be changed with online digital content or broadcast material in current formats, unless there is a repackaging and/or format 5 conversions.

Thus, a significant disadvantage of such conventional systems is that they do not permit a service provider, who offers audio, animation and video data services, to associate additional information with the programming and provide the two without 10 interfering with the programming production process. Existing systems also fail to provide additional information with the digital media content without changing the way in which the content is produced, stored, and/or distributed.

## **SUMMARY**

15 The following aspects of the invention are directed to ameliorating or overcoming one or more disadvantages of conventional systems including those described above.

In accordance with a first aspect of the invention, a method is provided for presenting supplemental information and/or action with time-sequence data. The time-sequence 20 data can be animation, audio, and/or video data. The method includes the steps of: providing time-sequence data; separately providing supplemental information, action, or both, from the time-sequence data; and linking the supplemental information, action, or both, with the time-sequence data during playback of the time-sequence data.

25 Preferably, the supplemental information and/or action is linked with the time-sequence data by a start time and a stop time, or a start time and a duration period. Alternatively, the supplemental information and/or action can be linked with the time-sequence data by annotation information associated with the time-sequence data. Yet further, the supplemental information and/or action can be linked with the time- 30 sequence data using on-the-fly content analysis of the time-sequence data during playback of the latter.

Preferably, the supplemental information and/or action is content-linked with the time sequence data. The time-sequence data can be provided by broadcast or via a network. The supplemental information and/or action is preferably provided remotely

5 via a network. It can include a displayed prompt with which a user can interact by user input and a link to a remote location. The link is more preferably a universal resource locator (URL). The following mechanisms can also be provided remotely via a network.

10 Preferably, the time-sequence data and the supplemental information and/or action are linked by a link mechanism. Two or more of the link mechanism, the time-sequence data, and the supplemental information and/or action are initially co-located at their source. Alternatively, two or more of the link means, the time-sequence data, and the supplemental information and/or action are initially remotely located at one or more

15 source locations.

In accordance with another aspect of the invention, an apparatus is provided for presenting supplemental information and/or action with time-sequence data. The apparatus includes: a device for providing time-sequence data; a device for separately providing supplemental information and/or action from the time-sequence data; and a device for linking the supplemental information and/or action with the time-sequence data during playback of the time-sequence data.

20

25 In accordance with yet another aspect of the invention, a computer program product is provided having a computer readable medium having a computer program recorded therein for presenting supplemental information and/or action with time-sequence data. The computer program includes: a module for providing time-sequence data; a module for separately providing supplemental information and/or action from the time-sequence data; and a module for linking the supplemental information and/or action

30 with the time-sequence data during playback of the time-sequence data

## BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention are described hereinafter with reference to the drawings, in which:

- 5 Fig. 1A is a timing diagram graphically depicting a linked combination of time-sequence data and supplemental information and/or action in accordance with embodiments of the invention;
- 10 Fig. 1B is a timing diagram illustrating the linked relationship of exemplary video, animation and/or audio data and four advertisements in accordance with embodiments of the invention;
- 15 Fig. 2 is a block diagram illustrating the functional modules of an apparatus for presenting supplemental information, action, or both, with time-sequence data in accordance with the a embodiment;
- 20 Fig. 3 is a block diagram illustrating a variation of the apparatus according to the first embodiment shown in Fig. 2;
- 25 Fig. 4 is a graphical depiction of an exemplary application of the embodiments where a video is displayed on a monitor with a corresponding advertising banner;
- 30 Fig. 5 is a high-level flow diagram of a method of delivering supplemental information and/or action with time-sequence data in accordance with the first embodiment of the invention;
- 35 Fig. 6 is a flow diagram of a method of providing value-added content related to at least one of animation, audio and video data, in the process of presenting the animation, audio, and/or video data to a user in accordance with a second embodiment of the invention;

Fig. 7 is a flow diagram of a method of distributing advertisements with animation, audio and/or video data delivered for presentation by way of broadcast or streaming over a network in accordance with a third embodiment of the invention; and

5 Figs. 8A-8E are detailed flow diagrams of a method of presenting advertisements in association with video or movie in accordance with a fourth embodiment of the invention.

### **DETAILED DESCRIPTION**

10 A method, apparatus and computer program product for linking supplementary information, actions, or both, to time-sequence (or “time-base) data is disclosed. The time-sequence data include animation, audio and/or video data. Fig. 1A is a timing diagram illustrating a linked combination 100 of time-sequence data 110 and supplemental information and/or action 120, 122, 124. Three portions 120, 122, 124 are linked for presentation with the time-sequence data. Essentially numerous forms of supplemental information and/or actions can be linked to the time-sequence data using the embodiments of the invention described herein. In addition to providing supplemental information, the embodiments can also provide “actions”, which in broad terms denotes any additional functionality provided to the user. This can be

15 implemented as a computer program such as a Java applet that can be executed by a computer displaying time-sequence data. Exemplary actions include functionality for conducting surveys or for changing time-sequence data.

20

25 Amongst other things, the embodiments enable video service providers such as cable and broadcast television service providers to add controllably and on-the-fly added-value content to their video product by tightly linking advertisements to the subject-matter content of the video product. In this manner, the video with content-linked supplemental information and/or actions can be readily differentiated from normal broadcast video, for example. The same applies equally to audio and animation data.

30 The supplemental information and/or actions are provided via a network, preferably an electronic network such as the Internet or an Intranet.

Fig 1B is a timing diagram illustrating the linked relationship 150 between a video, animation and/or audio program 160 and four advertisements 162, 164, 166, 168. Additional advertisement content may be available at a remote location on a network

5 and be accessed by a link (e.g. URL) in the advertisement. As shown, the estimation 150 includes overlapping advertisements, namely first and third advertisements 162 and 166 on the one hand and the second advertisement 164 on the other. One or more of the video, animation and/or audio data, the supplemental information and/or action, and linking mechanisms or controls for linking the content data with the supplemental

10 information and/or action can be distributed via a network. Further, they may be obtained from two or more different sources on the network. Thus, for example, a video content provider can provide the video programming via the Internet from a first source site, the supplemental information and/or action from another source site, and the linking control database from yet another site. Other combinations are possible.

15 For example, the video programming may be available locally at a user's location while the other components are delivered via a network, or vice versa.

With reference to the example of video delivered by broadcast or a network, the embodiments of the invention enable advertisements to be tightly linked in a

20 programmable and on-the-fly manner to the content of the video. An advertisement can be displayed as a graphical banner in combination with the video presented on a display monitor. Fig. 4 is a depiction of an exemplary application 400 of the embodiments where a video 420 is displayed with a corresponding advertising banner 430. In this example, the video data 420 is displayed in a panel of the graphical

25 operating system 410 (e.g. Microsoft Windows 95 or 98). The exemplary portion of the video 420 is currently displaying a well-known water fountain at Sentosa Island in Singapore. In conjunction with the video 420 being presented, an advertisement 430 is presented within the same panel. It will be readily appreciated that the advertisement 430 need not be presented in the same window. The advertisement 430 is presented as

30 a banner referring to "Destination Sentosa: Experience it all...". A user can click on the banner 430 while it is displayed, and further supplemental information and/or

action can be obtained. For example, an advertisement 440 about Sentosa Island (shown in the background) can be retrieved via a URL of the banner 430 to download the advertisement 440 from a site on the Internet.

5 If the video is a film with actors and props, the advertisements can be directly linked to such video content. An advertiser can make direct reference in the advertisement to props in the video including articles of clothing, jewelry and accessories worn by particular actors in a scene. The advertiser can also make reference to items such as furniture, wallpaper and appliances. The foregoing applies to virtually anything visibly and/or audibly perceptible in the video. Thus, the advertisement content-linked to the video can bring an item in the video to the viewer's attention and provide a way of 10 making a purchase by the viewer using electronic commerce, for example.

Again, the video can be streamed over an electronic network to a user's personal computer with video display capabilities. By way of example, the video itself can be displayed in a window in a graphical operating system such as Microsoft Windows 95 (Trade Mark) running on a conventional personal computer, laptop computer, or work station. Also displayed in the window can be a banner or other graphical presentation containing information associating the banner with the content of the video.

15 20 Alternatively, the banner might be displayed in a separate window. By means of a textual reference, the banner can refer to a dress worn by an actress in the current video content as being sold by a particular advertiser. By appropriate interaction with the banner, the user can obtain further information about the dress or purchase it. The information obtained in this manner can be obtained remotely or in appropriate cases locally. In one embodiment, the banner displays an HTML link to a remote site to which the user's personal computer is connectable by means of the Internet. From the advertiser's remote site, further information about the dress can be obtained including how to purchase it using electronic commerce or by telephone purchase.

25 30 In yet another illustration, a video track can be played on a display device such as a television receiver with touch-screen functionality. In conjunction with the television

receiver, a set topbox (associated with cable television services, for example) can be provided by which supplemental information and/or actions can be distributed. The functionality of such cable set topboxes are increasingly more sophisticated. An action can be displayed via the set topbox with the video on the television receiver, whereby

5 the relevant action can be chosen from a banner or the like displayed with the video. For example, the subject matter content of the displayed video can be a documentary about bears and include material on bears in Alaska. Where a segment about Alaskan bears is displayed, a banner displayed in association with the video can show a message indicating that a related program about Alaska is currently available for viewing. By

10 appropriate user interaction with the banner, such as touching an icon displayed in the banner, an action is carried out causing the displayed programming to change to the related program about Alaska without the user having to manually select the particular station.

15 In still another illustration, an audio track received by a tuner/receiver provided in a personal computer (e.g. Web radio) can be audibly output by the personal computer. In conjunction with the content of the audio segment, supplemental information and/or action can be displayed on the personal computer. The subject matter of the audio segment might involve discussion about some form of on-going audience survey, and

20 an appropriate prompt can be displayed on the personal computer dependent upon the audio content. By clicking on the prompt, the user can interactively participate in the survey over the Internet. Numerous other applications can be envisaged by those skilled in the art in view of the disclosure of the embodiments herein.

25 The embodiments of the invention are able to strongly link supplemental information and/or actions including advertising with the content of time-sequence data including animation, audio and video. Further, the embodiments of the invention enable flexible control of the flow of the supplemental information and/or action and its content. For example, the embodiments of the invention enable flexible control of the flow of

30 advertising in relation to an animation, audio and/or video sequence and the content of the advertising itself. Still further, the embodiments of the invention in particular

applications enable close linkage of electronic commerce with the content of the time-sequence data.

The embodiments of the invention are able to differentiate time-sequence data from conventional broadcast time-sequence data by providing a content-based linkage with the supplemental information, action or both. Further, the embodiments provide a non-interfering mechanism for providing the supplemental information, action or both with respect to both the time-sequence data itself and the delivery mechanism used to deliver the time-sequence data. That is, no modification of the time-sequence data or its delivery mechanism is required. All existing time-sequence data can be used. For example, a video delivered on demand over a network to an end-user does not require any modification and can be sourced from a digital video disc (DVD) without change or embedding additional information prior to transmission. Still further, the embodiments support customised and focused content-linking of supplemental information, action, or both to the time-sequence data. This is particularly advantageous where the supplemental information, action or both relates to advertising. In addition, the embodiments of the invention enable full, on-the-fly or "realtime" control over the content, sequencing and timing of the supplemental information, action, or both, delivered to the user in conjunction with the time-sequence data. Thus, advertisers for example can have full and realtime control over the advertisement content. Customised advertising can therefore be supported.

As an example, embodiments of the invention permit a video program to be delivered via a network on demand or on a pre-scheduled basis to viewers. Sponsors of the program or advertisers can buy slots, both in terms of time-length as well as the time position in the video program. During the time slots, the sponsor or advertiser can provide HTML, XML, or other format advertisements that appear on the viewer's display device (e.g. a personal computer). The sponsor or advertiser can have full control over their advertisement content, whereas the advertisement length and position can be pre-negotiated and controlled by the delivery service provider (e.g. cable service provider). The sponsor or advertiser provides a URL from where their

advertisement content can be retrieved or downloaded. An advertisement delivered in this manner can provide a link to the sponsor's or advertiser's electronic commerce facility via a network or provide other means of conducting business. The latter might include providing a phone number to call for telephone transactions or the like.

5     Alternatively, a call centre can be contacted using video, audio or text communication.

Fig. 5 is a high-level flow diagram illustrating a method of delivering supplemental information, action, or both, with time-sequence data in accordance with a first embodiment of the invention. Processing commences in step 500. In step 502, time sequence data is provided. Again, the time-sequence data can include one or more of animation, audio and video data or programming. The time-sequence data can be provided by broadcast or via a network. In step 504, supplemental information and/or action is provided separately from the time-sequence data. Examples of the supplemental information and/or action include a universal resource locator (URL) to a remote site via a network, an interactive program, an icon, or an advertisement banner. In step 506, the supplemental information and/or action is linked with the time-sequence data during or immediately before playback of the time-sequence data. The supplemental information and/or action is preferably provided remotely via a network. The supplemental information and/or action can include a link to a remote location, and in particular, a universal resource locator (URL). It can also include a displayed prompt with which user can interact by user input.

The supplemental information and/or action can be linked with the time-sequence data by means of a start time and a stop time, or a start time and a specified duration. 25     Alternatively, the supplemental information and/or action can be linked with the time-sequence data by means of annotation information associated with the time-sequence data. Still further, the supplemental information and/or action can be linked with the time-sequence data, which is dependent upon on-the-fly content analysis of the time-sequence data during playback of the latter. This may be done using any of a number 30     of known image/video/audio segmentation, recognition and analysis techniques well

known to those skilled in the art. Preferably, the supplemental information and/or action is content-linked with the time sequence data.

In step 508, the time-sequence data and the supplemental information and/or action is

5 presented to an audience. In the case of video and animation information, presentation can be implemented using a display monitor of a personal computer, a television receiver, a video monitor or the like. In the case of audio information, the audio data (i.e. time sequence data) can be output by a personal computer (e.g. Web radio) or other conventional sound reproduction devices for broadcast and network streamed

10 audio. The supplemental information and/or action can be presented on a personal computer, a video monitor, or the like.

The time-sequence data and the supplemental information and/or action are linked by a link. At least two of the link, the time-sequence data, and the supplemental

15 information and/or action can be initially co-located at their source. Alternatively, two or more of the links, the time-sequence data, and the supplemental information and/or action can be initially remotely located at one or more remote source locations of the network. In step 510, processing terminates.

20 Preferably, the first embodiment of the invention depicted in Fig. 5 is implemented as software or a computer program for presenting supplemental information and/or action with time-sequence data. The software including a Java applet can be run on a computer such as a personal computer or workstation, or Java virtual machine, for example, well known to those skilled in the art. In particular, the computer program

25 can be recorded on a computer readable medium and used in combination with the computer as a computer program product. The steps of Fig. 5 can be implemented as modules of software containing operations or instructions to implement the functionality. Alternatively, the functionality of Fig. 5 can be implemented electronically (e.g. in an application specific integrated circuit ASIC). For example, it

30 can be embedded in a set top box for use with a video monitor or television receiver. Numerous other applications will be readily appreciated by those skilled in the art in

view of the disclosure herein. The foregoing applies equally to further embodiments of the invention described hereinafter.

Fig. 2 is a block diagram illustrating the functional modules of an apparatus 200 for

5 presenting supplemental information, action, or both, with time-sequence data in accordance with the first embodiment. Again, time-sequence data including video, animation and/or audio data 210 are provided by broadcast or via an electronic network. Alternatively, the data 210 may be provided locally. In addition, one or more linking mechanisms 220 is provided separately from the time-sequence data 210. Two

10 or more linking mechanisms 220 are referred to in Fig. 2 as a database (DB) of linking mechanisms. The linking mechanism database can be prepared by video, animation, and/or audio content provider or the operator. Supplemental information and/or action (or value added content) 230 is also provided. This can be HTML/XML/other formats advertisements prepared and controlled by advertisers. Preferably, a linking

15 mechanism 220 is a predefined data structure containing parameters of particular supplemental information and/or action 230 for presentation with a particular portion of the time-base data 210. Preferably, the database 220 is database of advertisement controls, and the supplemental information and/or action 230 is one or more advertisements.

20 One or more of the video, animation and/or audio data 210, the supplemental information and/or action 230 and linking mechanisms or controls 220 for linking the content data 210 with the supplemental information and/or action 230 can be distributed via one or more communication media 260. Further, they may be obtained

25 from two or more different sources such as two or more sites on the Internet, or the video can be delivered via a cable television network. Other combinations are possible. While single-headed arrows are depicted in Fig. 2, it will be readily appreciated from the disclosure that communication between the components of Fig. 2 may be bi-directional.

The time-sequence data 210, link mechanisms 220 and supplemental information and/or action 230 are provided to a playback controller and/or interpreter PCI 240. The PCI 240 merges the video, animation and/or video data 210 and the supplemental information and/or action 230 for presentation on an appropriate presentation device

5 ("display") 250. Preferably, the PCI240 has a cache for storing linking mechanisms 220. It also preferably has a cache for storing supplemental information and/or action 230. Again, the apparatus 200 can be implemented using a general-purpose computer or electronically.

10 For example, during a video program delivered to the apparatus 200 via a network either on demand or on pre-scheduled basis to viewers, sponsors of the program or advertisers can buy advertising slots. The advertising slots can be both in terms of time-length as well as the time-position in the video program. The advertisers can present their HTML/XML/other-formats advertisements on a viewer's display 250.

15 Using a URL, advertisement content can be downloaded. An advertisement can provide a link to the advertiser's e-commerce facility, or provide other means of conducting business. This gives advertisers full-control over their advertisement content, while the advertisement length and position is pre-negotiated and controlled by the video service provider.

20 Consider a video program that airs at 8:00 PM and finishes at 8:30 PM. For this program, advertisers can buy slots that are variable length in time. These slots can be displayed at fixed points in time during the broadcast of the program. An advertiser for watches might display a watch advertisement while a lead actor in the video

25 program is wearing the watch, which the advertiser wants to sell to the viewers. At the same time, another advertiser for suits display a clothing advertisement, which might be longer or shorter than the watch advertisement. For on-demand type scenarios, the start time of the advertisements is with respect to the beginning of the program rather than in absolute time. The advertiser can get charged by the service

30 provider based on a number of factors, including the length of the advertisement slot.

the placement of an advertisement during the program, and whether or not the slot is shared with someone.

An example entry in the linking mechanism database or advertisement control database  
5 is:

Start-time: 00:05:00

End-time: 00:06:00

Address: <http://www.watchesRus.com/advert/>

10 During the broadcast, the PCI 240 displays the video information 210 and starts interpreting the advertisement control 220. At a specified start time for a particular advertisement, the PCI 240 fetches the advertisement content from the specified address, which is defined in the advertisement control 220 along with the timing information. Alternatively, the embodiment can be practiced using annotation to link  
15 the data 210 with the supplemental information and/or action 230. The advertisement content is displayed using the display or presentation device 250 (or the advertisement content can also be pre-fetched). The PCI 240 stops the display of the advertisement content when its duration has expired.

20 The format of the linking mechanism database or advertisement control database 220 has a format designed to be easy to produce, modify and maintain. It should also be efficient for transmission purposes and be extensible. Exemplary fields for the format are:

25       Period of advert display (from date – to date, which days)  
          Start time – End time (in minutes:seconds)  
          Size of advert on display (in inches)  
          Location of advert on display (llc, lrc, urc, ulc, center etc)  
          Address of advertisement content (URL)

30 Since the PCI 240 executes the database of linking mechanisms or advertisement control database 220, the PCI 240 is developed hand-in-hand with the format of a

linking mechanism or advertisement control. In addition, so that more features can be added to the PCI 240, the PCI 240 should be well structured and extensible.

When a video, animation and/or audio program 210 starts, the address of the link mechanism database or the advertisement control database 220 is transmitted with the initialization information.

5

Fig. 3 is a block diagram illustrating a variation 300 of the apparatus 200 shown in Fig. 2. For purposes of brevity, like features in Figs. 2 and 3 are identified with the same reference numerals. Only differing elements or features are identified with numerals of the format 3XX. In particular, video, animation and audio 210 is provided to an on-the-fly content analyser 310 forming part of the apparatus 300. The content analyser 310 is connected to the PCI 240, and preferably forms part of the PCI 240. The content analyser 310 can be used to determine the linking of the supplemental information and/or action with the video, animation and/or audio data 210, either entirely on its own or in combination with the linking mechanisms 220. A dashed-line arrow extends between the communication media 260 and the content analyser 310. This arrow indicates that optionally the video, animation and/or audio data 210 can be delivered directly to the content analyser 310 without passing through the PCI 240.

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Fig. 6 is a flow diagram of a method of providing value-added content related to at least one of animation, audio and video data, in the process of presenting the animation, audio, and/or video data to a user in accordance with a second embodiment of the invention. Processing commences in step 600. In step 602, animation, audio, and/or video data or programming is delivered for presentation to a user. In step 604, the value-added content is provided separately from the animation, audio and/or video data. The value-added content is preferably an advertisement and can include a universal resource locator (URL). However, as described above in terms of the

supplemental information and/or action, the value-added content can include additional functionality, services and information. Alternatively, or in addition, the value-added content may include a set of instructions for performing operations on a local apparatus or a remote apparatus linked with the local apparatus by a network. The 5 local apparatus can be a personal computer or the like connected to the Internet, and the remote apparatus can be a site on the Internet.

In step 606, a linking mechanism or structure is provided, separate from the animation, 10 audio, and/or video data, which can link the value-added content with the animation, audio, and/or video data in a controllable and on-the-fly manner prior to presentation of the animation, audio, and/or video data and the value-added content. The linking mechanism can include a start time and a stop time of the value-added content in relation to the animation, audio, and/or video data, as well as an indicator of the 15 location of the value-added content. Alternatively, the linking mechanism can include an annotation associated with the animation, audio, and/or video data. More preferably, the linking mechanism is dependent upon the content the animation, audio, and/or video data.

In step 608, the animation, audio, and/or video data and the value-added content are 20 presented to the user. The value-added content can be presented separately in a device for reproducing the animation, audio and/or video data, such as a television or video monitor. Alternatively, it can be presented in or on the animation, audio and video data in a device for reproducing the animation, audio and video data. Processing terminates in step 610.

25 As described in relation to the first embodiment, the process of Fig. 6 can be implemented as an apparatus and/or a computer program product.

Fig. 7 is a flow diagram of a method of distributing advertisements with animation, 30 audio and/or video data delivered for presentation by way of broadcast or streaming over a network in accordance with a third embodiment of the invention. Processing

commences in step 700. In step 702, animation, audio and/or video data is delivered for presentation. In step 704, an advertisement related to the animation, audio and/or video data is provided separately. Preferably, the advertisement is capable of connecting a user with a remote location via a network by user interaction with the  
5 advertisement. In step 706, one or more advertisement control links are provided for linking separate advertisements with the animation, audio and/or video data. In step 708, the advertisement is presented to a user during presentation of the animation, audio and/or video data dependent upon the advertisement control link. Optionally, the method includes a step (not shown) of vending a product or service by means of  
10 electronic commerce or contacting a call centre dependent upon the advertisement. Processing terminates in step 710.

15 Figs. 8A to 8E are a detailed flow diagram of a method of displaying advertisements in association with a movie or video in accordance with a fourth embodiment of the invention. The flow diagram illustrates many specific details, however, those skilled in the art will appreciate that numerous changes can be made to the process without departing from the scope and spirit of the invention. Likewise, while detailed steps of a process involving video or movies is set forth, the process can be readily adapted for application in relation to audio and/or animation data in view of the disclosure herein.  
20

With reference to Fig. 8A, processing commences in step 800. In step 802, an identifier (e.g. a title) of a movie or video is read, and the sources of the movie/video and the advertisement control database are determined. In step 804, the advertisement control database is opened. In step 806, a panel in a graphical computing environment  
25 (e.g. Microsoft Windows 98) for displaying an advertisement is created, and the current list of advertisements is set to null. In step 808, a panel is also created for displaying the movie or video. The movie preferably plays in this panel as a separate thread. After step 808, three separate threads are carried out preferably substantially in parallel by the operating system. In Fig. 8A, the separate threads are denoted by  
30 connectors A, B and C corresponding to Figs. 8B, 8C, and 8D, respectively.

Fig. 8B is a flow diagram of a thread for handling incoming advertisement controls and advertisements. The advertisement controls and advertisements are streamed for presentation of the advertisements to a viewer. In step 812, the media time of the movie is obtained from the media player. In step 814, a cache storing advertisement controls is updated. In step 816, the locations of new advertisements are obtained from the updated advertisement control data cache. In step 818, the advertisement cache is updated by streaming the advertisements for the current portion of the movie playing and for an additional predefined period yet to be played. In decision block 820, a check is made to determine if the advertisement update thread (Fig. 8C) or the movie playing thread has ended. If decision block 820 returns false (NO), processing continues at step 812. Otherwise, if decision block 820 returns true (YES), the thread terminates in step 822.

The process of Fig. 8B can be readily implemented for handling the use of annotations to link the advertisements and the movie. The annotations of the movie can be obtained for the currently playing portion of the movie and a few annotations read ahead for a portion(s) of the movie yet to be played. The annotations in the movie are then matched with the annotations of the advertisements in the advertisement control data cache. The locations of the advertisements are determined in this manner. The advertisements are then streamed to update the advertisement cache.

Fig. 8C is a flow diagram of the process of presenting advertisements while a movie is playing. In particular, the advertisements are updated. In step 826, the media time of the player presenting the movie is read. In step 828, using the media time, a start time and an end time of a current advertisement(s), a check is made to determine if any advertisements have to be removed. This step can be readily modified to handle the case where annotation is used to link advertisements with the movie. This involves comparing the annotation of the movie with the annotation of the advertisement. The advertisement is to be played for the duration of the matching movie annotation. Decision block 830 determines this result. If decision block 830 returns false (NO), processing continues at step 834. Otherwise, if decision block 830 returns true (YES),

the advertisement being processed is removed from the advertisement panel created in step 806. Processing then continues in step 834.

In step 834, using the media time, advertisements are selected from the advertisement cache to be made current. In decision block 836, a check is made to determine if any advertisements should be added for presentation. If decision block 836 returns false (NO), processing continues at decision block 840. Otherwise, if decision block 836 returns (YES), processing continues at step 838. In step 838, the advertisement is added to the advertisement panel created in step 806 for presentation. Processing continues at decision block 838. In decision block 840, a check is made to determine if the movie has ended or if the user has stopped play. If decision block 840 returns false (NO), processing continues at step 826. Otherwise, if decision block 840 returns true (YES), processing continues at step 842. In step 842, the player software application is closed or terminated and the advertisement control database is closed. Processing of this thread terminates in step 844.

Fig. 8D is a flow diagram of the process of playing a movie. In step 848, user inputs including fast forward, rewind, etc., are received and responded to by the player. In decision block 850, a check is made to determine if the end of the movie has been reached or it has been user terminated. If decision block 850 returns false (NO), processing continues at step 848. Otherwise, if decision block 850 returns true (YES), the thread terminates in step 852.

Fig. 8E is a flow diagram illustrating the processing of interactive user input in relation to a playing advertisement. Processing commences in step 870. In step 874, input can be received from a user. In step 876, the thread responds to the user input and performs an appropriate action as defined in the advertisement control database for the advertisement. In decision block 878, a check is made to determine if the advertisement has been removed from the advertisement panel. If decision block 878 returns false (NO), processing continues at step 874. Otherwise, if decision block 878 returns true (YES), the thread terminates in step 880.

Thus, Figs. 8A-8E provide specific implementation details of one particular application of the fourth embodiment in relation to movie or video data. The process can be practiced with readily apparent changes in view of the disclosure for processing

5 animation and/or audio data. This embodiment is able to strongly link advertising with the content of animation, audio and/or video data. In particular, it enables flexible control of the flow of the advertisement and the advertisement content. Importantly, the process of Figs. 8A-8E provides the advertisement for presentation to a user without requiring any modification of the movie itself and the delivery mechanism used

10 to deliver the movie. The fourth embodiment enables customised and focused content-linking of advertising to the time-sequence data.

The foregoing embodiments of the invention disclose a method, apparatus and computer program product for linking supplementary information, actions, or both, to time-sequence data dependent upon the content of the time-sequence data. The time-sequence data include animation, audio and/or video data. Only a small number of embodiments have been disclosed by way of example. However, those skilled in the art will recognise that the invention can be practiced, with modification, in the light of the information contained herein without departing from the scope and spirit of the

15 invention.

20

The claims defining the invention are as follows:

1. A method of presenting supplemental information, action, or both, with time-sequence data, including:
  - 5 providing time-sequence data;
  - separately providing supplemental information, action, or both, from said time-sequence data;
  - linking said supplemental information, action, or both, with said time-sequence data during playback of said time-sequence data.
- 10
2. The method according to claim 1, wherein said supplemental information, action, or both, is linked with said time-sequence data by a start time and a stop time.
- 15
3. The method according to claim 1, wherein said supplemental information, action, or both, is linked with said time-sequence data by annotation information associated with said time-sequence data.
4. The method according to any one of claims 1 to 3, wherein said supplemental information, action, or both, is content-linked with said time sequence data.
- 20
5. The method according to claim 4, wherein said supplemental information, action, or both, is linked with said time-sequence data dependent upon on-the-fly analysis of the content of said time-sequence data during playback of said time-sequence data.
- 25
6. The method according to claim 1, wherein said time-sequence data is animation, audio, and/or video data.

7. The method according to claim 1, wherein said time-sequence data is provided by broadcast.

8. The method according to claim 1, wherein said time-sequence data is 5 provided via a network.

9. The method according to claim 1, wherein said supplemental information, action, or both, is provided remotely via a network.

10 10. The method according to claim 1, wherein said supplemental information, action, or both, includes a displayed prompt with which a user can interact by user input.

15 11. The method according to claim 1, wherein said supplemental information, action, or both, includes a link to a remote location.

12. The method according to claim 11, wherein said link is a universal resource locator (URL).

20 13. The method according to claim 1, wherein said time-sequence data and said supplemental information, action, or both are linked by a link means.

25 14. The method according to claim 13, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially co-located at their source.

15. The method according to claim 13, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially remotely located at one or more source locations.

16. An apparatus for presenting supplemental information, action, or both, with time-sequence data, including:

means for providing time-sequence data;

5 means for separately providing supplemental information, action, or both, from said time-sequence data; and

means for linking said supplemental information, action, or both, with said time-sequence data during playback of said time-sequence data.

17. The apparatus according to claim 16, wherein said supplemental information, action, or both, is linked with said time-sequence data by a start time and a stop time.

18. The apparatus according to claim 16, wherein said supplemental information, action, or both, is linked with said time-sequence data by annotation information associated with said time-sequence data.

19. The apparatus according to any one of claims 16 to 18, wherein said supplemental information, action, or both, is content-linked with said time sequence data.

20 20. The apparatus according to claim 19, wherein said supplemental information, action, or both, is linked with said time-sequence data dependent upon on-the-fly analysis of the content of said time-sequence data during playback of said time-sequence data.

25 21. The apparatus according to claim 16, wherein said time-sequence data is animation, audio, and/or video data.

30 22. The apparatus according to claim 16, wherein said time-sequence data is provided by broadcast.

23. The apparatus according to claim 16, wherein said time-sequence data is provided via a network.

24. The apparatus according to claim 16, wherein said supplemental information, action, or both, is provided remotely via a network.

25. The apparatus according to claim 16, wherein said supplemental information, action, or both, includes a displayed prompt with which a user can interact by user input.

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26. The apparatus according to claim 16, wherein said supplemental information, action, or both, includes a link to a remote location.

15

27. The apparatus according to claim 16, wherein said link is a universal resource locator (URL).

28. The apparatus according to claim 16, wherein said time-sequence data and said supplemental information, action, or both are linked by a link means.

20

29. The apparatus according to claim 16, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially co-located at their source.

25

29. The apparatus according to claim 28, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially remotely located at one or more source locations.

30

30. A computer program product having a computer readable medium having a computer program recorded therein for presenting supplemental information, action, or both, with time-sequence data, including means for providing time-sequence data:

means for separately providing supplemental information, action, or both, from said time-sequence data; and

means for linking said supplemental information, action, or both, with said time-sequence data during playback of said time-sequence data.

5

31. The computer program product according to claim 30, wherein said supplemental information, action, or both, is linked with said time-sequence data by a start time and a stop time.

10

32. The computer program product according to claim 30, wherein said supplemental information, action, or both, is linked with said time-sequence data by annotation information associated with said time-sequence data.

15

33. The computer program product according to any one of claims 30 to 32, wherein said supplemental information, action, or both, is content-linked with said time sequence data.

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34. The computer program product according to claim 33, wherein said supplemental information, action, or both, is linked with said time-sequence data dependent upon on-the-fly analysis of the content of said time-sequence data during playback of said time-sequence data.

25

35. The computer program product according to claim 30, wherein said time-sequence data is animation, audio, and/or video data.

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36. The computer program product according to claim 30, wherein said time-sequence data is provided by broadcast.

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37. The computer program product according to claim 30, wherein said time-sequence data is provided via a network.

38. The computer program product according to claim 30, wherein said supplemental information, action, or both, is provided remotely via a network.

39. The computer program product according to claim 30, wherein said supplemental information, action, or both, includes a displayed prompt with which a user can interact by user input.

40. The computer program product according to claim 30, wherein said supplemental information, action, or both, includes a link to a remote location.

10

41. The computer program product according to claim 30, wherein said link is a universal resource locator (URL).

42. The computer program product according to claim 30, wherein said time-sequence data and said supplemental information, action, or both are linked by a link means.

43. The computer program product according to claim 30, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially co-located at their source.

44. The computer program product according to claim 43, wherein two or more of said link means, said time-sequence data, and said supplemental information, action, or both, are initially remotely located at one or more source locations.

25

45. A method of providing value-added content related to at least one of animation, audio, and video data, while said at least one of animation, audio, and video data is being presented to a user, including the steps of:

30 delivering said at least one of animation, audio, and video data for presentation to said user;

providing said value-added content being separate from said at least one of animation, audio and video data; and

providing linking means, separate from said at least one of animation, audio, and video data, for linking said value-added content with said at least one of animation, 5 audio, and video data in a controllable and on-the-fly manner prior to presentation of said at least one of animation, audio, and video data and said value-added content.

46. The method according to claim 45, further including the step of presenting for said user said at least one of animation, audio, and video data and said 10 value-added content.

47. The method according to claim 45 or 46, wherein said value-added content is an advertisement.

15 48. The method according to claim 45, wherein said linking means includes a start time and a stop time of said value-added content in relation to said at least one of said animation, audio, and video data.

20 49. The method according to claim 45, wherein said linking means includes an annotation associated with said at least one of said animation, audio, and video data.

50. The method according to claim 45, wherein said value-added content includes a universal resource locator (URL).

25 51. The method according to claim 45, wherein said value-added content includes a set of instructions for performing operations on a local apparatus or a remote apparatus linked with said local apparatus by a network.

52. The method according to claim 46, wherein said value-added content is presented separately in a device for reproducing said at least one of animation, audio and video data.

5 53. The method according to claim 46, wherein said value-added content is presented in or on said at least one of animation, audio and video data in a device for reproducing said at least one of animation, audio and video data.

10 54. The method according to claim 45, wherein said linking means is dependent upon the content said at least one of animation, audio, and video data.

55. An apparatus for providing value-added content related to at least one of animation, audio, and video data, while said at least one of animation, audio, and video data is being presented to a user, including:

15 means for delivering said at least one of animation, audio, and video data for presentation to said user;  
means for providing said value-added content being separate from said at least one of animation, audio and video data; and  
means for providing linking means, separate from said at least one of  
20 animation, audio, and video data, for linking said value-added content with said at least one of animation, audio, and video data in a controllable and on-the-fly manner prior to presentation of said at least one of animation, audio, and video data and said value-added content.

25 56. The apparatus according to claim 55, further including means for presenting to said user said at least one of animation, audio, and video data and said value-added content.

30 57. The apparatus according to claim 55 or 56, wherein said value-added content is an advertisement.

58. The apparatus according to claim 55, wherein said linking means includes a start time and a stop time of said value-added content in relation to said at least one of said animation, audio, and video data.

5 59. The apparatus according to claim 55, wherein said linking means includes an annotation associated with said at least one of said animation, audio, and video data.

10 60. The apparatus according to claim 55, wherein said value-added content includes a universal resource locator (URL).

15 61. The apparatus according to claim 55, wherein said value-added content includes a set of instructions for performing operations on a local apparatus or a remote apparatus linked with said local apparatus by a network.

62. The apparatus according to claim 56, wherein said value-added content is presented separately in said means for representing said at least one of animation, audio and video data.

20 63. The apparatus according to claim 56, wherein said value-added content is presented in or on said at least one of animation, audio and video data in said means for reproducing said at least one of animation, audio and video data.

25 64. The apparatus according to claim 55, wherein said linking means is dependent upon the content said at least one of animation, audio, and video data.

30 65. A computer program product having a computer readable medium having a computer program recorded therein for providing value-added content related to at least one of animation, audio, and video data, while said at least one of animation, audio, and video data is being presented to a user, including

means for delivering said at least one of animation, audio, and video data for presentation to said user;

means for providing said value-added content being separate from said at least one of animation, audio and video data; and

5 means for providing linking means, separate from said at least one of animation, audio, and video data, for linking said value-added content with said at least one of animation, audio, and video data in a controllable and on-the-fly manner prior to presentation of said at least one of animation, audio, and video data and said value-added content.

10

66. The computer program product according to claim 65, further including means for presenting to said user said at least one of animation, audio, and video data and said value-added content.

15

67. The computer program product according to claim 65 or 66, wherein said value-added content is an advertisement.

20

68. The computer program product according to claim 65, wherein said linking means includes a start time and a stop time of said value-added content in relation to said at least one of said animation, audio, and video data

25

70. The computer program product according to claim 65, wherein said value-added content includes a universal resource locator (URL).

30

71. The computer program product according to claim 65, wherein said value-added content includes a set of instructions for performing operations on a local

computer program product or a remote computer program product linked with said local computer program product by a network.

72. The computer program product according to claim 66, wherein said  
5 value-added content is presented separately in said means for presenting said at least one of animation, audio and video data.

73. The computer program product according to claim 66, wherein said  
value-added content is presented in or on said at least one of animation, audio and  
10 video data in said means for reproducing said at least one of animation, audio and  
video data.

75. The computer program product according to claim 65, wherein said  
linking means is dependent upon the content said at least one of animation, audio, and  
15 video data.

76. A method of distributing advertisements with animation, audio and/or  
video data, said animation, audio and/or video data being delivered for presentation by  
way of broadcast or streaming over a network, said method including the steps of:  
20 delivering said animation, audio and/or video data for presentation;  
delivering a separate advertisement related to said animation, audio and/or  
video data;  
providing an advertisement control link for linking said separate advertisement  
with said animation, audio and/or video data; and  
25 presenting for a user said advertisement during presentation of said animation,  
audio and/or video data dependent upon said advertisement control link.

77. The method according to claim 76, wherein said advertisement is  
capable of connecting a user with a remote location via a network by user interaction  
30 with said advertisement.

78. The method according to claim 77, further comprising the step of vending a product or service by means of electronic commerce or contacting a call centre dependent upon said advertisement.

5 79. An apparatus for distributing advertisements with animation, audio and/or video data, said animation, audio and/or video data being delivered for presentation by way of broadcast or streaming over a network, said apparatus including:

means for delivering said animation, audio and/or video data for presentation;

10 means for delivering a separate advertisement related to said animation, audio and/or video data;

means for providing an advertisement control link for linking said separate advertisement with said animation, audio and/or video data; and

15 means for presenting for a user said advertisement during presentation of said animation, audio and/or video data dependent upon said advertisement control link.

80. The apparatus according to claim 79, wherein said advertisement is capable of connecting a user with a remote location via a network by user interaction with said advertisement.

20 81. The apparatus according to claim 80, further comprising means for vending a product or service using electronic commerce or by contacting a call centre dependent upon said advertisement.

25 82. An computer program product for distributing advertisements with animation, audio and/or video data, said animation, audio and/or video data being delivered for presentation by way of broadcast or streaming over a network, said computer program product including:

means for delivering said animation, audio and/or video data for presentation;

30 means for delivering a separate advertisement related to said animation, audio and/or video data;

means for providing an advertisement control link for linking said separate advertisement with said animation, audio and/or video data; and

means for presenting for a user said advertisement during presentation of said animation, audio and/or video data dependent upon said advertisement control link.

5

83. The computer program product according to claim 82, wherein said advertisement is capable of connecting a user with a remote location via a network by user interaction with said advertisement.

10

84. The computer program product according to claim 83, further comprising means for vending a product or service using electronic commerce or by contacting a call centre dependent upon said advertisement.

50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995 1000

**METHOD AND APPARATUS FOR CONTENT-LINKING SUPPLEMENTAL  
INFORMATION WITH TIME-SEQUENCE DATA**

**5 ABSTRACT**

A method, apparatus and computer program product are disclosed for linking supplemental information and/or actions (120-124) on-the-fly with animation, audio and/or video data (110) for presentation, dependent upon the content of the animation, audio and/or video data (110). The supplemental information and/or actions (120-124) are preferably advertisements and means of electronic commerce linked on the fly with the animation, audio and/or video data (110). In this manner, advertisements (162-168) can be flexibly and controllably delivered in combination with the animation, audio and/or video data (160). The latter may be delivered by broadcasting or by streaming over an electronic network. The animation, audio and/or video data (210), advertisements (230) and an advertisement control database (220) containing linking mechanisms or structures are provided to a playback controller and/or interpreter (240), which can be implemented using a personal computer or a set topbox, prior to being displayed on a display or other presentation mechanism (250). The user can interact with the supplemental information and/or action (250).

20

Fig. 2A

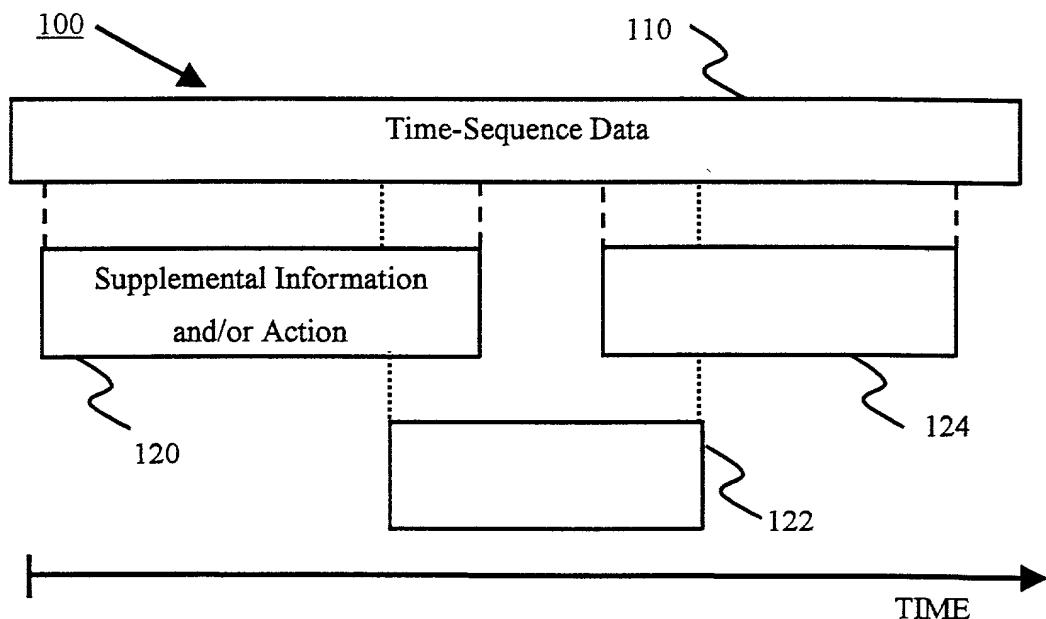


FIG. 1A

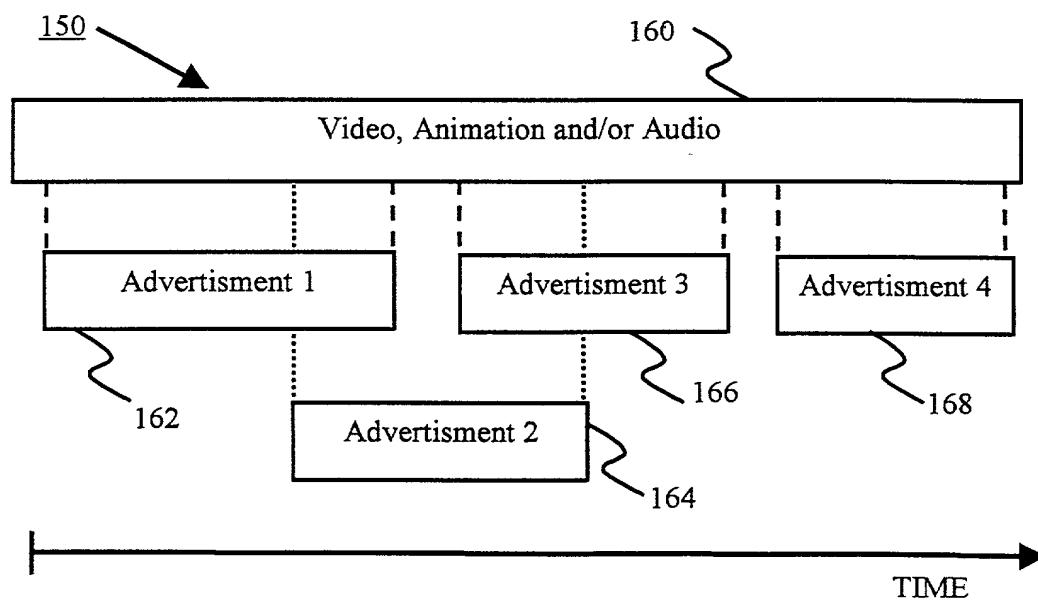


FIG. 1B

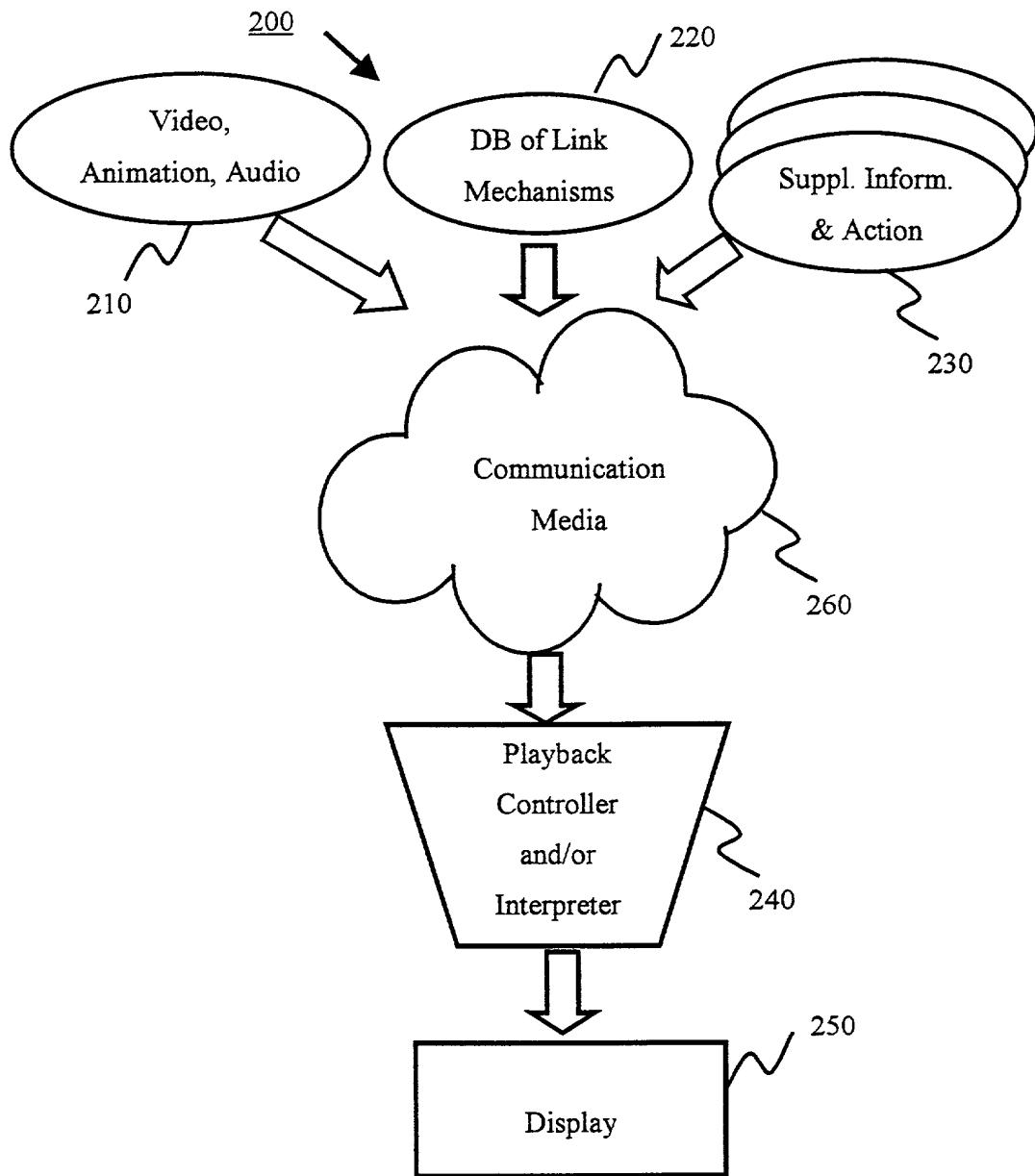


FIG. 2

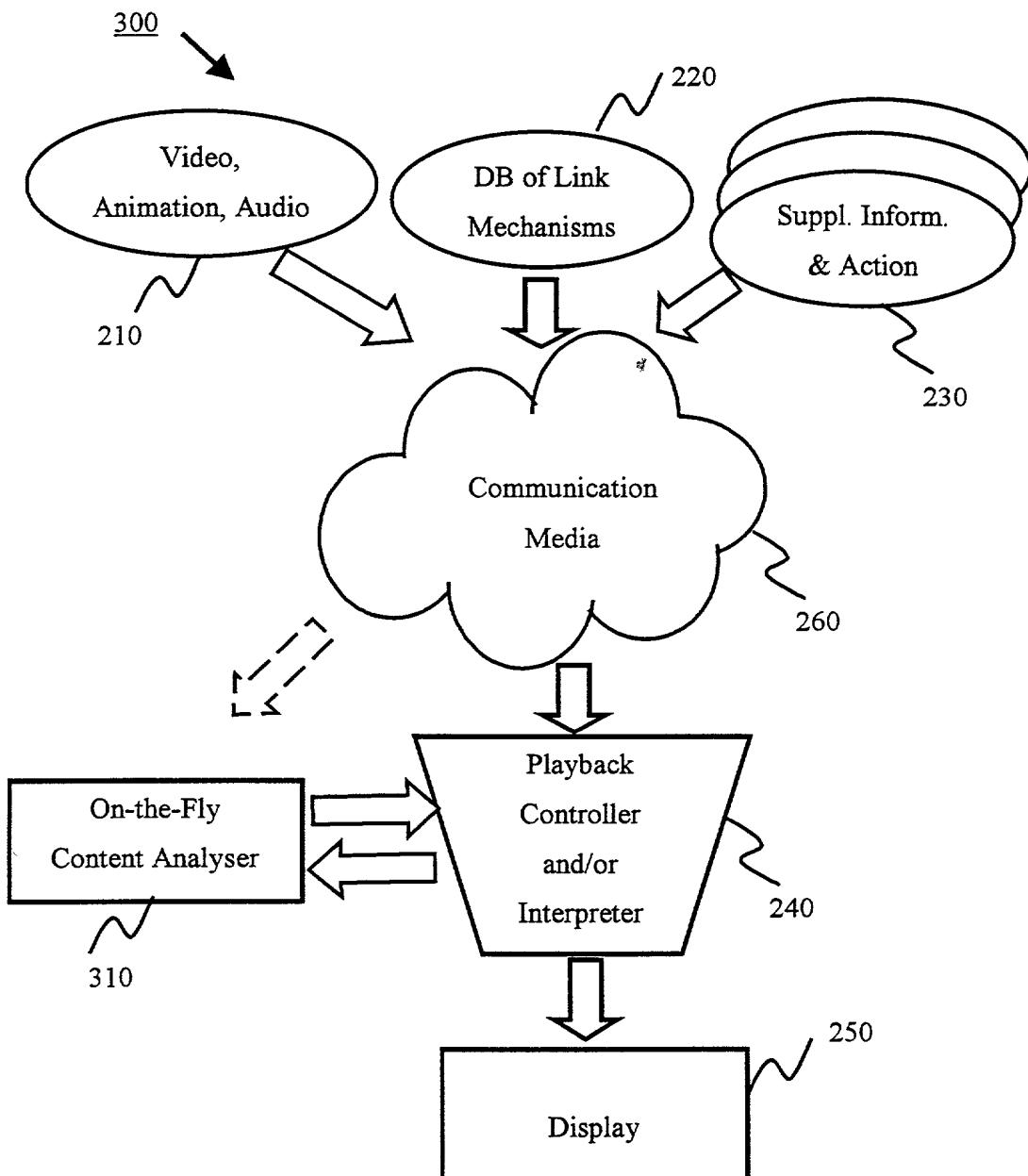


FIG. 3

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- 4/12 -

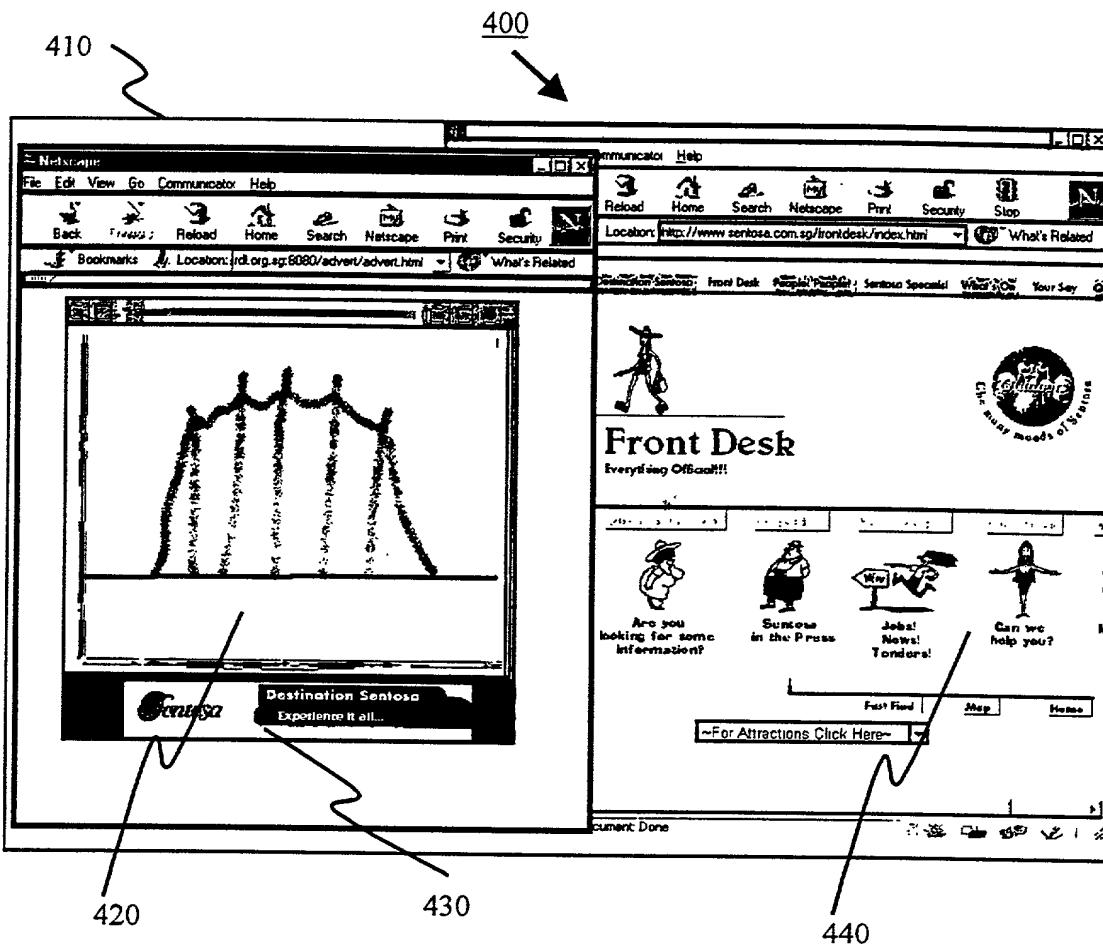


Fig. 4

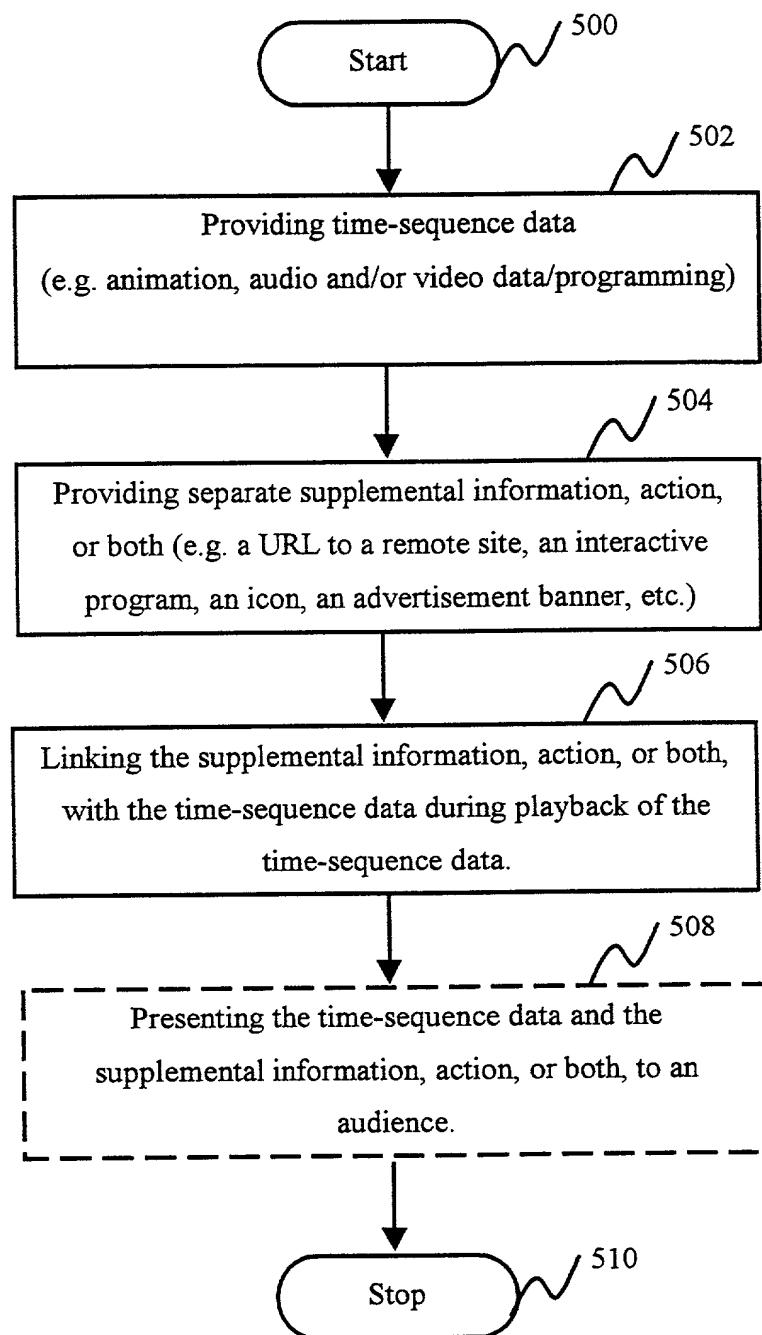


FIG. 5

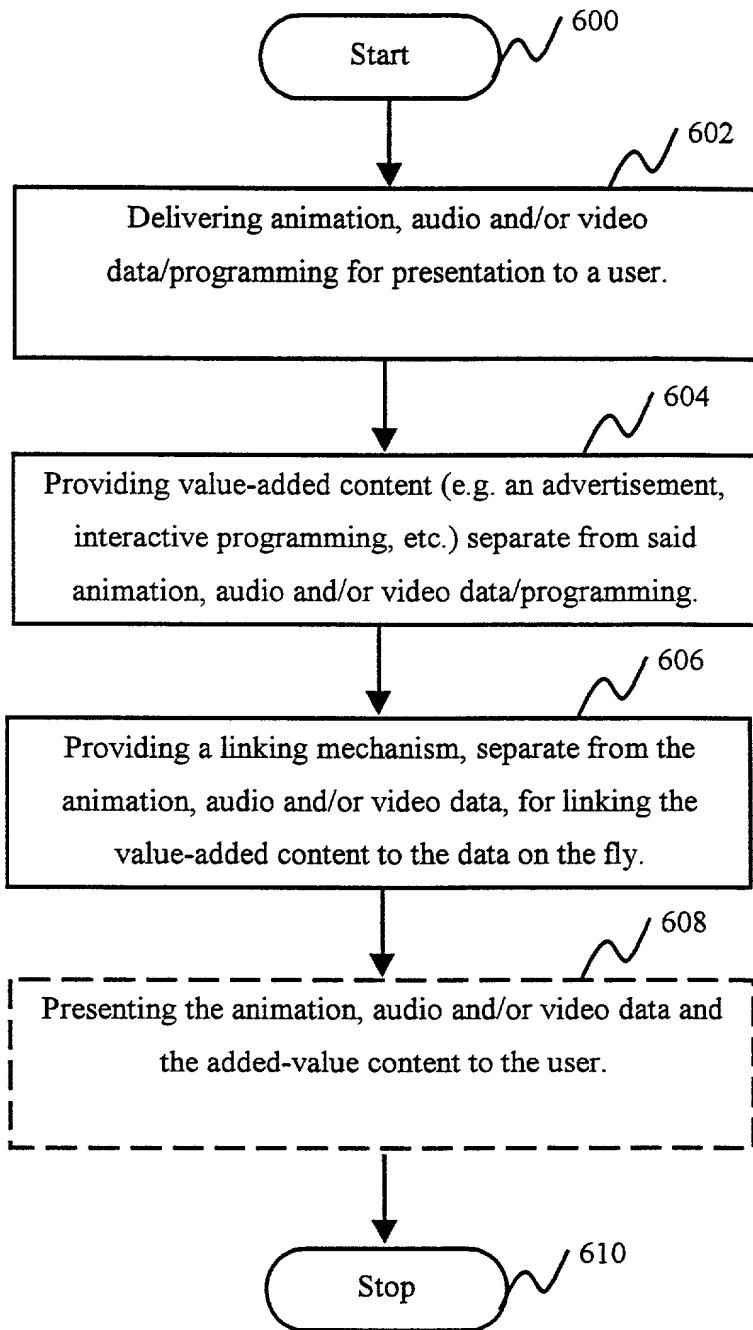


FIG. 6

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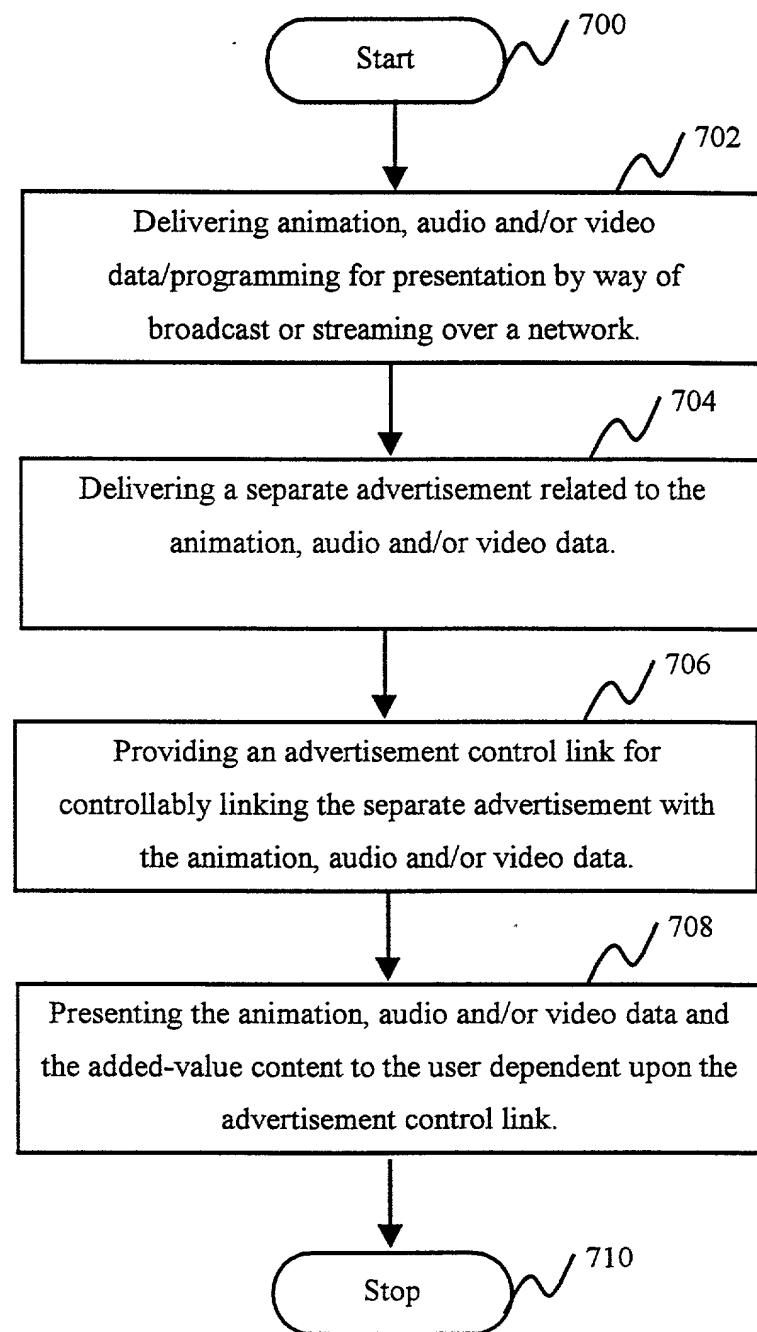


FIG. 7

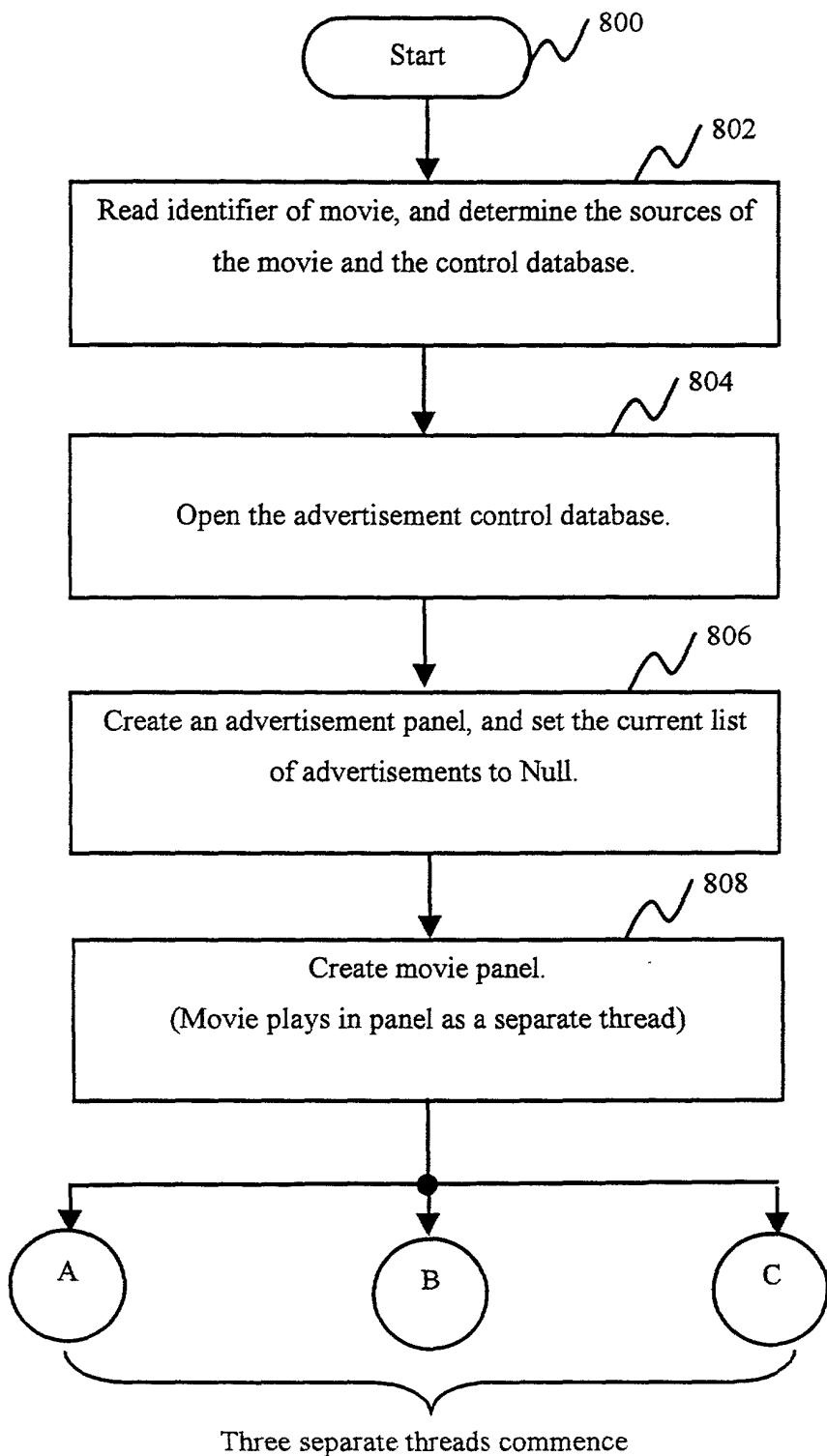


FIG. 8A

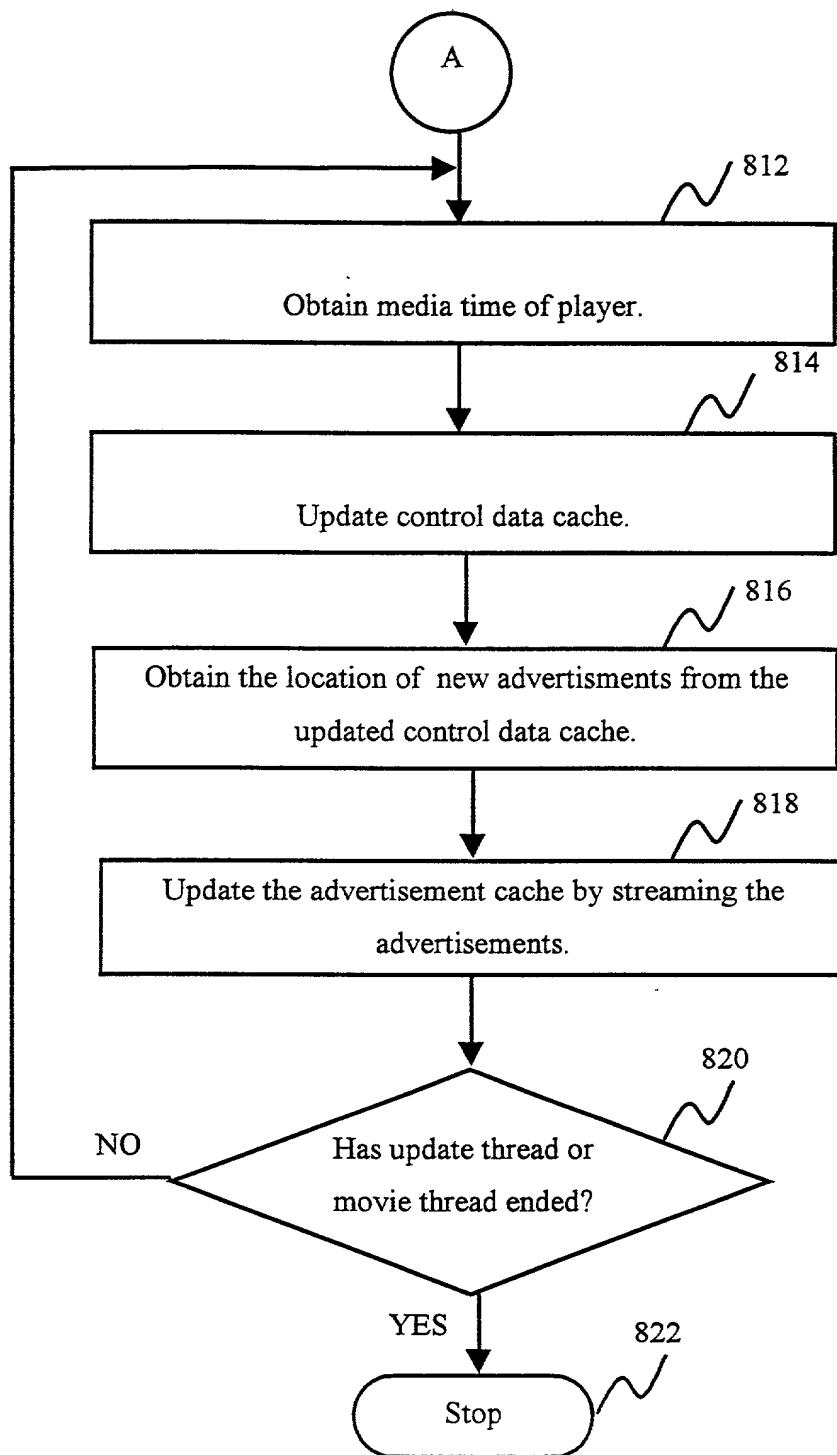


FIG. 8B

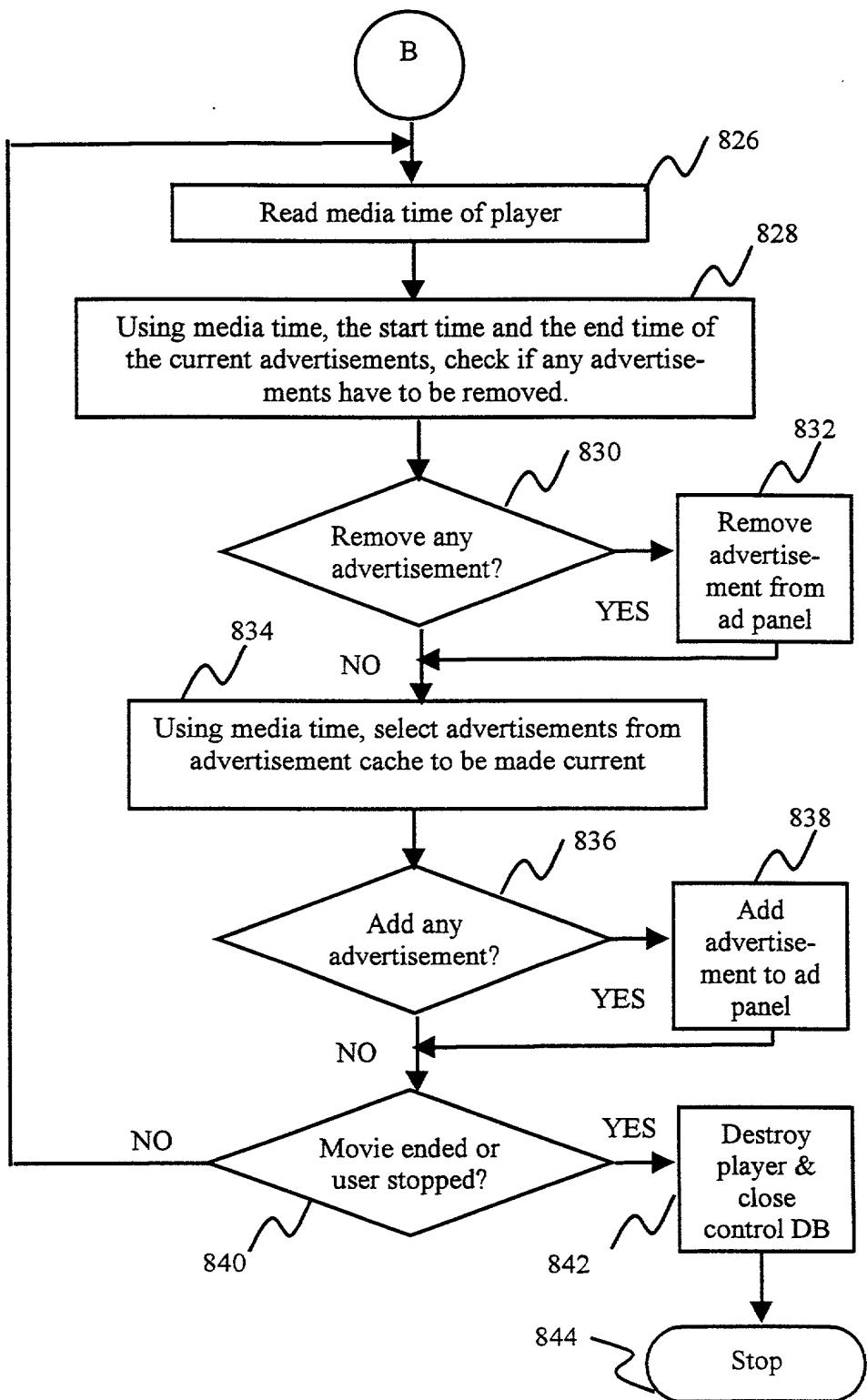


FIG. 8C

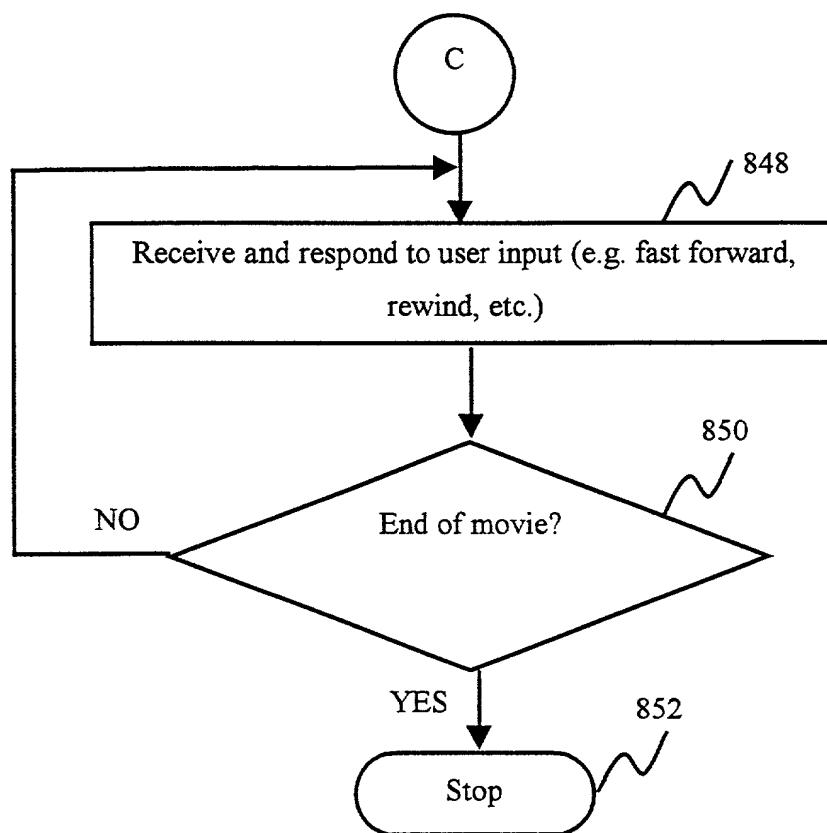


FIG. 8D

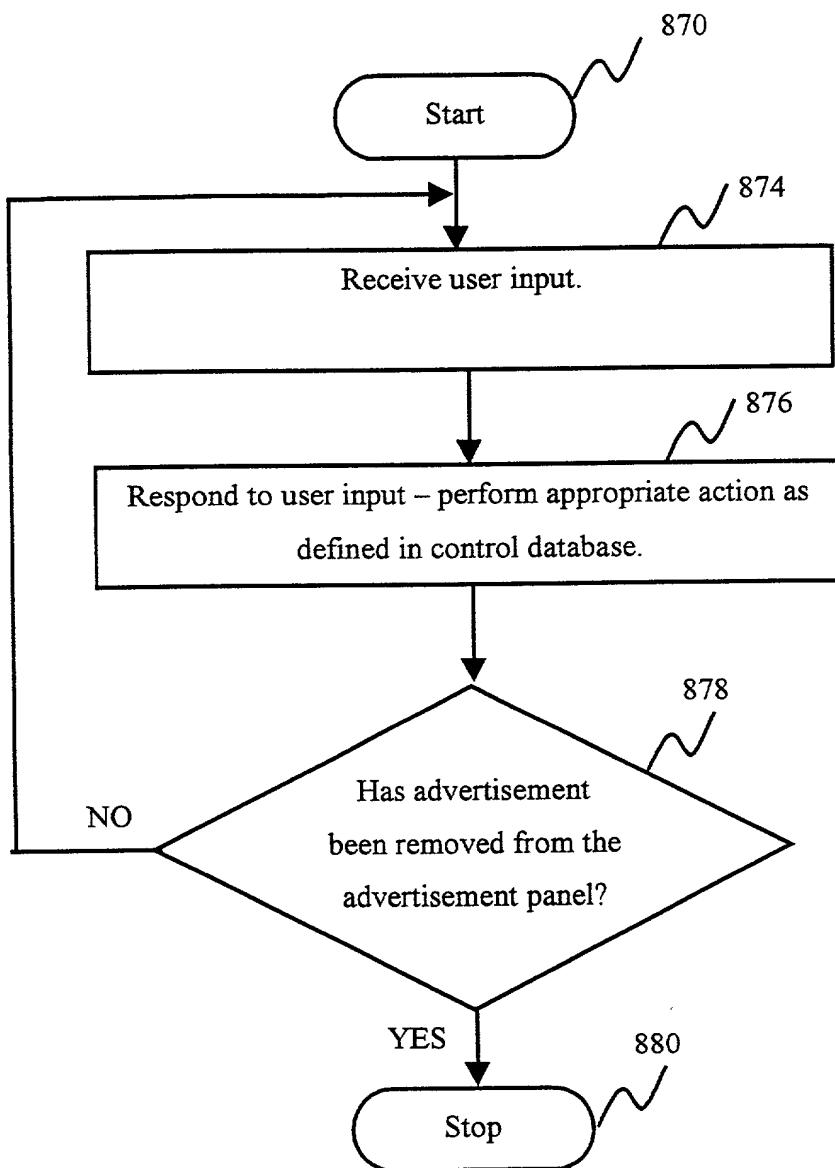


FIG. 8E

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U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
PCT/SG98/00096	11/27/1999	

Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:  Customer Number  →  Registered practitioner(s) name/registration number listed below  Place Customer Number Bar Code Label here

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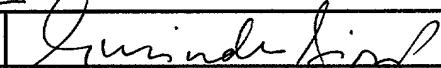
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**Name of Sole or First Inventor:**  A petition has been filed for this unsigned inventor

Given Name (first and middle if any)	Family Name or Surname		
<u>Gurminder</u>	<u>SINGH</u>		

Inventor's Signature				Date	29 April 1999
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Residence: City	<u>Singapore</u>	State		Country	<u>Singapore</u>	50X	Citizenship	Indian
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Additional inventors are being named on the 1 supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto

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PTO/SB/02A (3-97)

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### ADDITIONAL INVENTOR(S)

#### Supplemental Sheet

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Given Name (first and middle [if any])		Family Name or Surname					
<u>Vinod Vijayalekshmi</u>		<u>VASUDEVAN</u>					
Inventor's Signature	<u>Vinod</u>					Date	<u>30/4/99</u>
Residence: City	<u>Singapore</u>	State		Country	<u>Singapore</u>	Citizenship	<u>Indian</u>
Post Office Address	<u>Hong Leong Garden Condominium, Block 75, West Coast Drive, #03-01</u>						
Post Office Address							
City	<u>Singapore</u>	State		ZIP	<u>127972</u>	Country	<u>Singapore</u>
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])		Family Name or Surname					
Inventor's Signature						Date	
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
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Inventor's Signature						Date	
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Application Number	
Filing Date	
First Named Inventor	SINGH, Gurinder
Group Art Unit	
Examiner Name	
Attorney Docket Number	

I hereby appoint:

 Practitioners at Customer NumberPlace Customer  
Number Bar Code  
Label here**OR** Practitioner(s) named below:

Name	Registration Number
JULIAN H. COHEN	20302
WILLIAM R. EVANS	25858
JANET I. CORD	33778
CLIFFORD J. MASS	30086

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the Patent and Trademark Office connected therewith.

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<input checked="" type="checkbox"/> Firm or Individual Name	LADAS & PARRY				
Address	26 West 61st Street				
Address					
City	New York	State	NY	ZIP	10023
Country	United States of America				
Telephone	(212) 708 1800	Fax	(212) 246 8959		

I am the:

 Applicant. Assignee of record of the entire interest

Certificate under 37 CFR 3.73(b) is enclosed

**SIGNATURE of Applicant or Assignee of Record**

Name	SINGH, Gurinder
Signature	
Date	April 29 1999

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APPLICATION**

Application Number	
Filing Date	
First Named Inventor	SINGH, Gurminder
Group Art Unit	
Examiner Name	
Attorney Docket Number	

I hereby appoint:

 Practitioners at Customer NumberPlace Customer  
Number Bar Code  
Label here **OR** Practitioner(s) named below:

Name	Registration Number
JULIAN H. COHEN	20302
WILLIAM R. EVANS	25858
JANET I. CORD	33778
CLIFFORD J. MASS	30086

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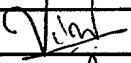
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 The above-mentioned Customer Number.**OR**

<input checked="" type="checkbox"/> Firm or Individual Name	LADAS & PARRY			
Address	26 West 61st Street			
Address				
City	New York	State	NY	ZIP 10023
Country	United States of America			
Telephone	(212) 708 1800	Fax	(212) 246 8959	

I am the:

 Applicant. Assignee of record of the entire interest  
Certificate under 37 CFR 3.73(b) is enclosed**SIGNATURE of Applicant or Assignee of Record**

Name	VASUDEVAN, Vinod Vijayalekshmi	
Signature		
Date	30 April 1999	

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PATENT APPLICATION  
(37 CFR 1.63)**

Declaration Submitted with Initial Filing       Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	
First Named Inventor <b>SINGH, Gurminder</b>	
<b>COMPLETE IF KNOWN</b>	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**Method And Apparatus For Content-Linking Supplemental Information With Time-Sequence Data**

the specification of which *(Title of the Invention)*

is attached hereto  
OR  
 was filed on (MM/DD/YYYY) **11/27/1998** as United States Application Number or PCT International

Application Number **PCT/SG98/00096** and was amended on (MM/DD/YYYY)    (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

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Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.
		<input type="checkbox"/>

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